

REMARKS / ARGUMENTS

Applicant thanks the Examiner for the Office Action of October 18, 2004. This Amendment is in full response thereto. Applicant has cancelled claims 11-22, amended claim 23, and presented new claims 24-31. Support for amended claim 23 and new claims 24-31 may be found in the originally filed set of claims. While adding no new subject matter to the application, Applicant has also revised the Specification and the Abstract to meet standard U.S. formatting requirements.

In the Office Action, the Examiner rejected claims 11-13, 16, and 19 under 35 USC 102(b) as anticipated by U.S. Patent No. 2,376,749 (Belaieff). Since Applicant has cancelled each of these claims, this rejection is deemed moot. As such, Applicant respectfully requests that it be withdrawn. As shown below, Applicant respectfully asserts that claims 23-31 are patentable over U.S. Belaieff.

In the Office Action, the Examiner also rejected claims 14-15 and 20-23 under 35 USC 103(a) as obvious over Belaieff in view of U.S. Patent No. 2,566,310 (Burns et al.). Since Applicant has cancelled claims 14-15 and 20-22, this rejection is deemed moot. As such, Applicant respectfully requests that it be withdrawn.

With respect to claim 23, Applicant respectfully traverses the rejection for at least one or more of the following reasons:

- a) neither Belaieff nor Burns et al., alone or in combination, disclose, teach or suggest the claimed invention;
- b) Belaieff, a patent in the field of aircraft internal combustion engine radiators, is improperly used in an obviousness-type rejection because it is neither in the same field of art as that of the instant invention, nor is it directed to the problem sought to be solved by the instant invention, namely, reducing the risk of igniting combustible materials in an oxygen-enriched environment; and
- c) the Examiner has not provided a motivation why one of ordinary skill in the art would hypothetically modify the radiator of Belaieff according to the disclosure of Burns et al. to result in the claimed invention.

An aspect of the instant invention is directed to an air separation apparatus. The Apparatus includes at least one column, at least one heat exchanger, means for sending a liquid containing more than 60% mol. oxygen to the heat exchanger, and means for removing vaporised liquid containing more than 60% mol. oxygen from the heat exchanger. The heat exchanger includes at least two stacked dividing plates (with a

roughly uniform thickness (e)), at least one passage between the plates, and at least one fin in a first one of the at least one passage. The at least two stacked dividing plates have a roughly uniform thickness (e). The ratio of the minimum thickness (e') of the each of the at least one fin to the thickness of each of said dividing plates (e) is greater than about 0.8.

This ratio advantageously decreases the risk that the heat exchanger will catch fire when it is used to vaporize an oxygen rich liquid, such as for example, when hydrocarbons and other impurities in the air fix upon the fins of the vaporiser. This is especially true if all the liquid evaporates away. By using the thickness ratio of greater than 0.8, ignition is less likely to take place, even in highly polluted environments.

With respect to argument a, while one portion of U.S. Belaieff discloses corrugated strip and wall thicknesses that result in the claimed thickness ratio, it fails to disclose, teach or suggest an air separation apparatus containing at least one column, means for sending a liquid containing more than 60% mol. oxygen to the heat exchanger, or means for removing vaporised liquid containing more than 60% mol. oxygen from the heat exchanger.

With further respect to argument a, while one portion of Burns et al. discloses tray base and fin thicknesses that result in the claimed thickness ration, it fails to disclose, teach or suggest means for sending a liquid containing more than 60% mol. oxygen to the heat exchanger, or means for removing vaporised liquid containing more than 60% mol. oxygen from the heat exchanger. In other words, it fails to teach vaporization of a liquid containing more than 60% mol. oxygen.

It is well established that a single reference may only defeat novelty of a claimed invention if it disclose each and every limitation of the claim. It is equally well established that a combination of references fails to render a claimed invention obvious if the combination of the references' teachings do not disclose each and every limitation of a claim. As such, Applicant asserts that neither Belaieff nor Burns et al., alone or in combination, renders claim 23-31 unpatentable.

With respect to argument b, Applicant respectfully points out that Belaieff is not in the same field as that of the claimed invention. Belaieff discloses a heat exchanger used to cool internal combustion systems on an aircraft. On the other hand, the invention of claims 23-31 is directed to an air separation apparatus. Applicant further points out that

one of ordinary skill in the art would likely not recognize Belaieff as being reasonably pertinent to the particular problem with which the inventor was concerned, namely avoidance of fire hazards.

In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor, or if not, then be reasonably pertinent to the particular problem with which the inventor was concerned. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). Thus, Applicant respectfully asserts that claims 23-31 are patentable over the hypothetical combination of Belaieff and Burns et al. suggested by the Examiner.

With respect to argument c., the Examiner has not provided a motivation for one of ordinary skill in the art to hypothetically modify Belaieff with the teachings of Burns et al. in the manner suggested such that it would result in the invention of claims 23-31. Indeed, Applicant points out that the Examiner has only recited a list of teachings which may or may not disclose some of the claim limitations. Applicant respectfully asserts that such a list does not rise to the level of a legally sufficient rejection under 35 USC 103(a).

In the Office Action, the Examiner rejected claim 19 under 35 USC 112(2) as being indefinite. Since this claim has been cancelled, it is deemed moot. As such, Applicant requests that the rejection be withdrawn.

CONCLUSION

In conclusion and for the reasons detailed above, Applicant respectfully asserts that the application is in condition for allowance. Applicant earnestly solicits early allowance of the same.

Should the Examiner believe that a telephone call would expedite prosecution of the application, she is invited to call the undersigned attorney at the number listed below. It is believed that no fee is due at this time. If that belief is incorrect, please debit deposit account number 01-1375. Also, the Commissioner is authorized to credit any overpayment to deposit account number 01-1375.

Respectfully submitted,



Christopher J. Cronin
Registration No. 46,513

January 18, 2005

Air Liquide
5230 S. East Ave.
Countryside, IL 60513
(708) 579-7925 Phone
(708) 579-7801 Fax

CERTIFICATE OF TRANSMISSION UNDER 37 CFR 1.8(a)

I hereby certify that this correspondence is being transmitted via facsimile to
telephone number 703-872-9306 on this 28th day of January, 2005.



Christopher J. Cronin
Registration Number 46,513